

Gout, anxiety, and depression in primary care: a matched retrospective cohort study

JA Prior, R Ogollah, S Muller, P Chandratre, E Roddy, CD Mallen

Research Institute for Primary Care and Health Sciences, Keele University, Staffordshire, UK

Co-morbidity is frequently experienced by gout patients (1) but psychological morbidity associated with gout remains poorly understood. Given the established association between musculoskeletal pain and mental health problems (2), it seems plausible that gout is associated with psychological co-morbidity, such as anxiety or depression. However, the incidence of these specific psychological co-morbidities in gout populations remains unknown. We conducted a matched retrospective cohort study to examine the association between gout and subsequent incident consultation for anxiety or depression in UK primary care.

Consultation data were available from nine general practices in North Staffordshire, UK between 2000 and 2011 (3). Consulters aged ≥ 18 years who had been diagnosed with gout between 2000 and 2008 were identified using Read codes and were frequency matched by age, gender, year of consultation, and general practice to four controls without gout. The outcome of interest was the first consultation with a diagnostic Read code for anxiety or depression subsequent to the first diagnostic Read code for gout. Gout patients or controls with a diagnosis of anxiety or depression before the matching dates were excluded.

Key characteristics of the gout sample and the matched controls were examined. These included factors upon which the cohorts were matched and the neighbourhood level of deprivation, determined using the Indices of Multiple Deprivation (IMD) (4). Incident consultation rates (per 1000 person-years) for anxiety or depression were calculated for gout and non-gout controls. The proportions consulting for other selected co-morbidities were also described. Cox regression was used to model the time to first anxiety or depression consultation, adjusting initially for the matched factors and then further adjusting to include deprivation status and co-morbidities. Outcomes are reported as hazard ratios (HRs) with 95% confidence intervals (CIs) for gout cases vs. matched controls.

In total, 1689 gout patients were identified and matched successfully to 6756 patients without gout. The mean age of gout patients was 63 years (sd 16);

76% were male. Deprivation status was similar between those with and without gout, gout patients were more likely to have all co-morbidities, other than smoking, than controls.

The incidence rate of depression was 10.8 (95% CI 10.0–11.7) per 1000 person-years for gout cases and 10.0 (95% CI 8.5–11.8) for matched controls. The incidence rate of anxiety was 15.2 (95% CI 14.2–16.2) per 1000 person-years for the gout cases and 16.2 (95% CI 14.3–18.3) for matched controls (Table 1). Unadjusted HRs in the Cox regression model found no association between gout and time to consultation for either anxiety (1.09, 95% CI 0.95–1.25) or depression (0.92, 95% CI 0.77–1.10) compared to matched controls. Adjustment had little effect on these associations for anxiety (1.01, 95% CI 0.87–1.16) or depression (0.87, 95% CI 0.73–1.05) (Table 1).

This is the first study of consultation incidence of psychological co-morbidities in gout. Using a large UK primary care consultation database, incident gout was not associated with subsequent consultation for anxiety or depression. Possible explanations are that the psychological burden of pain is lessened during the prolonged asymptomatic inter-critical periods between gout attacks in some patients, or that whereas gout predominantly affects men, women are more likely to consult primary care for anxiety or depression (5). As such, our study may simply reflect population norms of consulting behaviour (6).

This study provides new evidence of a lack of an association between common mental health problems and gout. This was achieved through the use of a large primary care database with proven validity and used previously to examine gout patients (3). There are several limitations of our study: anxiety and depression are typically under-reported in primary care (7) and limitations of coding by general practitioners (GPs) are also highlighted in the low prevalence of other co-morbidities, such as smoking. However, there is no reason to suspect that any under-recording of any of these conditions would differ between those with and without gout.

Table 1. Incidence rates and hazard ratios (HRs) for the risk of anxiety and depression in gout cases vs. matched controls.

Psychological co-morbidity	Sample n (%)	Incidence rate per 1000 person-years (95% CI)	Unadjusted HR (95% CI)	Adjusted HR * (95% CI)	Adjusted HR † (95% CI)
Anxiety					
Gout	258 (15.3)	15.2 (14.2–16.2)	1.09 (0.95–1.25)	1.10 (0.96–1.26)	1.01 (0.87–1.16)
Non-gout	958 (14.2)	16.2 (14.3–18.3)			
Depression					
Gout	164 (9.7)	10.8 (10.0–11.7)	0.92 (0.77–1.10)	0.93 (0.78–1.12)	0.87 (0.73–1.05)
Non-gout	640 (9.5)	10.0 (8.5–11.8)			

CI, confidence interval.

* Adjusted for age, gender, year of consultation, and general practice.

† Adjusted for age, gender, deprivation status, year of consultation, general practice, and co-morbidities. Adjustment for co-morbidity in anxiety included: depression, hypertension, hyperlipidaemia, diabetes and alcoholism and non-dependent alcohol abuse. Adjustment for co-morbidity in depression included: anxiety, hypertension, chronic kidney disease, alcoholism and non-dependent alcohol abuse and obesity.

In conclusion, the rates of consultation for anxiety or depression in UK primary care gout patients were equivalent to their matched counterparts. Further research is needed using more patient-reported measures of anxiety and depression and considering gout severity and disease characteristics.

Acknowledgements

We are grateful for the participation of primary care teams and their patients, the Keele GP Research Partnership and the Informatics team at the Arthritis Research UK Primary Care Centre. The Consultations in Primary Care Archive (CiPCA) is funded by the North Staffordshire Primary Care Research Consortium and Keele University Institute for Primary Care and Health Sciences.

CDM is funded by an Arthritis Research UK fellowship and by the National Institute for Health Research (NIHR) Collaborations for Leadership in Applied Health Research and Care (CLAHRC) West Midlands. SM is funded by a postdoctoral fellowship from the NIHR School for Primary Care Research (SPCR), PC is funded by an NIHR SPCR doctoral training fellowship. The study sponsors had no role in the study design; in the collection, analysis, and interpretation of data; in the writing of the report; and in the decision to submit the paper for publication. The views and opinions expressed therein are those of the authors and do not necessarily reflect those of the NIHR (UK). This paper presents independent research that is part-funded by the CLAHRC West Midlands. The views expressed are those of the author(s) and not necessarily those of the National Health Service (NHS), the NIHR or the Department of Health.

References

1. Roddy E, Choi HK. Epidemiology of gout. *Rheum Dis Clin North Am* 2014;40:155–75.
2. Demyttenaere K, Bruffaerts R, Lee S, Posada-Villa J, Kovess V, Angermeyer MC, et al. Mental disorders among persons with chronic back or neck pain: results from the World Mental Health Surveys. *Pain* 2007;129:332–42.
3. Roddy E, Mallen CD, Hider SL, Jordan KP. Prescription and comorbidity screening following consultation for acute gout in primary care. *Rheumatology* 2010;49:105–11.
4. Noble M, McLennan D, Wilkinson K, Whitworth A, Barnes H, Dibben C. The English indices of Deprivation 2007. London: Department for Communities and Local Government. Available from <https://www.gov.uk/government/collections/english-indices-of-deprivation#documents> (accessed 27 March 2015).
5. Vink D, Aartsen MJ, Schoevers RA. Risk factors for anxiety and depression in the elderly: a review. *J Affect Disord* 2008;106:29–44.
6. Shah R, McNiece R, Majeed A. Socio-demographic differences in general practice consultation rates for psychiatric disorders among patients aged 16–64. *Health Stat Q* 2001;11:5–10.
7. Norton J, de Roquefeuil G, David M, Boulenger JP, Ritchie K, Mann A. [Prevalence of psychiatric disorders in French general practice using the patient health questionnaire: comparison with GP case-recognition and psychotropic medication prescription], in French. *Encephale* 2009;35:560–9.

James A. Prior, Research Institute for Primary Care and Health Sciences, Keele University, Staffordshire ST5 5BG, UK
E-mail: j.a.prior@keele.ac.uk

Accepted 19 February 2015